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TERMINAL (ENTER 1, 2, 3, OR ?):2

* * * * * * * * * * Welcome to STN International * * * * * * * * * *

NEWS	1		Web Page URLs for STN Seminar Schedule - N. America
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NEWS	6	May 27	CAplus super roles and document types searchable in REGISTRY
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NEWS EXPRESS	MARCH 31 CURRENT WINDOWS VERSION IS V7.00A, CURRENT MACINTOSH VERSION IS V6.0c(ENG) AND V6.0Jc(JP), AND CURRENT DISCOVER FILE IS DATED 26 APRIL 2004
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NEWS INTER	General Internet Information
NEWS LOGIN	Welcome Banner and News Items
NEWS PHONE	Direct Dial and Telecommunication Network Access to STN
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* * * * * * * * * * * * * * STN Columbus * * * * * * * * * * * * * * * *

FILE 'HOME' ENTERED AT 12:05:36 ON 27 JUL 2004

=> file reg

COST IN U.S. DOLLARS	SINCE FILE ENTRY	TOTAL SESSION
FULL ESTIMATED COST	0.21	0.21

FILE 'REGISTRY' ENTERED AT 12:05:42 ON 27 JUL 2004
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STRUCTURE FILE UPDATES: 26 JUL 2004 HIGHEST RN 717086-44-7

DICTIONARY FILE UPDATES: 26 JUL 2004 HIGHEST RN 717086-44-7

TSCA INFORMATION NOW CURRENT THROUGH MAY 21, 2004

Please note that search-term pricing does apply when conducting SmartSELECT searches.

Crossover limits have been increased. See HELP CROSSOVER for details.

Experimental and calculated property data are now available. For more information enter HELP PROP at an arrow prompt in the file or refer to the file summary sheet on the web at:
http://www.cas.org/ONLINE/DBSS/registryss.html

=> file caplus

COST IN U.S. DOLLARS	SINCE FILE ENTRY	TOTAL SESSION
FULL ESTIMATED COST	2.94	3.15

FILE 'CAPLUS' ENTERED AT 12:09:38 ON 27 JUL 2004
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PLEASE SEE "HELP USAGETERMS" FOR DETAILS.

FILE COVERS 1907 - 27 Jul 2004 VOL 141 ISS 5
FILE LAST UPDATED: 26 Jul 2004 (20040726/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> file reg

COST IN U.S. DOLLARS	SINCE FILE ENTRY	TOTAL SESSION
FULL ESTIMATED COST	0.46	3.61

FILE 'REGISTRY' ENTERED AT 12:09:53 ON 27 JUL 2004
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.

Property values tagged with IC are from the ZIC/VINITI data file provided by InfoChem.

STRUCTURE FILE UPDATES: 26 JUL 2004 HIGHEST RN 717086-44-7
DICTIONARY FILE UPDATES: 26 JUL 2004 HIGHEST RN 717086-44-7

TSCA INFORMATION NOW CURRENT THROUGH MAY 21, 2004

Please note that search-term pricing does apply when conducting SmartSELECT searches.

Crossover limits have been increased. See HELP CROSSOVER for details.

Experimental and calculated property data are now available. For more information enter HELP PROP at an arrow prompt in the file or refer to the file summary sheet on the web at:
http://www.cas.org/ONLINE/DBSS/registryss.html

```
=> e acrylic acid/cn
E1            1     ACRYLIC ACETIC ANHYDRIDE/CN
E2            1     ACRYLIC ACI-BEHENYL ACRYLATE-BUTYL ACRYLATE COPOLYMER/CN
E3            1 --> ACRYLIC ACID/CN
E4            1     ACRYLIC ACID B-CHLOROETHYL ESTER/CN
E5            1     ACRYLIC ACID 1-(ADAMANTAN-1-YL)-1-METHYLETHYL ESTER/CN
E6            1     ACRYLIC ACID 1-ETHYL-2-METHYLALLYL ESTER/CN
E7            1     ACRYLIC ACID 1-METHYLBUT-3-ENYL ESTER/CN
E8            1     ACRYLIC ACID 1-VINYLHEXYL ESTER/CN
E9            1     ACRYLIC ACID 2,2-DIETHYLHYDRAZIDE/CN
E10           1     ACRYLIC ACID 2-(1,8-NAPHTHALIMIDO)ETHYL ESTER/CN
E11           1     ACRYLIC ACID 2-(METHYL(PHENYL)AMINO)ETHYL ESTER/CN
E12           1     ACRYLIC ACID 2-(METHYL-(4-(4-(PYRIMIDIN-2-YLSULFAMOYL)PHENYL
                    AZO)PHENYL)AMINO)  ETHYL ESTER/CN

=> e3
L1            1 "ACRYLIC ACID"/CN

=> file caplus
COST IN U.S. DOLLARS                          SINCE FILE      TOTAL
                                                   ENTRY    SESSION
FULL ESTIMATED COST                                 4.85       8:46

FILE 'CAPLUS' ENTERED AT 12:10:18 ON 27 JUL 2004
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
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FILE COVERS 1907 - 27 Jul 2004  VOL 141 ISS 5
FILE LAST UPDATED: 26 Jul 2004  (20040726/ED)

  This file contains CAS Registry Numbers for easy and accurate
  substance identification.


=> l1
L2        33119 L1

=> countercurrent
          23626 COUNTERCURRENT
             63 COUNTERCURRENTS
L3        23679 COUNTERCURRENT
                (COUNTERCURRENT OR COUNTERCURRENTS)

=> l2 and l3
L4           26 L2 AND L3

=> hydrophob?
L5       138292 HYDROPHOB?
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=> l4 and l5
L6            2 L4 AND L5

=> d l6 1-2 ti fbib abs

L6   ANSWER 1 OF 2  CAPLUS  COPYRIGHT 2004 ACS on STN
TI   Method for purifying acrylic acid obtained by oxidation of propylene
     and/or acrolein
AN   2001:208225  CAPLUS
DN   134:237959
TI   Method for purifying acrylic acid obtained by oxidation of propylene
     and/or acrolein
IN   Fauconet, Michel; Laurent, Denis; Stojanovic, Mireille
PA   ATOFINA, Fr.
SO   PCT Int. Appl., 35 pp.
     CODEN: PIXXD2
DT   Patent
LA   French
FAN.CNT 1
     PATENT NO.         KIND  DATE           APPLICATION NO.  DATE
     ---------------    ----  --------       ---------------  --------
PI   WO 2001019769      A1    20010322       WO 2000-FR2505   20000912
         W:  AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN,
             CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR,
             HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT,
             LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU,
             SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN,
             YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
         RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY,
             DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ,
             CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG
                                          FR 1999-11483  A 19990914
     FR 2798382         A1    20010316       FR 1999-11483    19990914
     FR 2798382         B1    20011026
     AU 2000074271      A5    20010417       AU 2000-74271    20000912
                                          FR 1999-11483  A 19990914
                                          WO 2000-FR2505 W 20000912
     EP 1212280         A1    20020612       EP 2000-962604   20000912
         R:  AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
             IE, SI, LT, LV, FI, RO, MK, CY, AL
                                          FR 1999-11483  A 19990914
                                          WO 2000-FR2505 W 20000912
     JP 2003509394      T2    20030311       JP 2001-523350   20000912
                                          FR 1999-11483  A 19990914
                                          WO 2000-FR2505 W 20000912
OS   MARPAT 134:237959
AB   The invention concerns a method whereby the gaseous reaction mixture (1)
     formed from propylene as the case may be, of final oxidation products, of
     acrylic acid, acrolein, water vapor, acetic acid and heavy products, is
     set at the base of an absorption column (C1), fed in
     countercurrent at the head with a hydrophobic heavy
     absorption solvent such as ditolyl ether.  At the head of (C1) a gas
     stream (7) is obtained, consisting of propylene and final oxidation products,
     major amts. of water and acetic acid, and acrolein, and at the base of
     (C1), a flux (4) consisting of acrylic acid, heavy solvent, heavy products
     and minor amts. of acetic acid and water.  The gas stream (7) is set on a
     heat exchanger (C3), where it is contacted with a descending liquid current
     (8) supplied at the head of (C3) and consisting of the recycled product of
     part of the flow (9) at the foot of (C3) previously cooled, to obtain, at
     the head, a gas stream (10) containing the compds. present in the gas stream
     (7) except for the major part of water and the entire amount of acetic acid,
     eliminated in the flow (9) at the base of (C3).  This purification is
     optionally conducted in the presence of a polymerization inhibitor.
RE.CNT  4      THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD
```

ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 2 OF 2 CAPLUS COPYRIGHT 2004 ACS on STN
TI Purification of acrylic acid obtained by the catalytic oxidation of propylene
AN 1997:178840 CAPLUS
DN 126:172034
TI Purification of acrylic acid obtained by the catalytic oxidation of propylene
IN Fauconet, Michel; Esch, Marc; Samuel, Yves; Laurent, Denis
PA Elf Atochem S.A., Fr.
SO Eur. Pat. Appl., 12 pp.
CODEN: EPXXDW
DT Patent
LA French
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 754671	A1	19970122	EP 1996-401590	19960717
	EP 754671	B1	19990331		
	R: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LI, LU, NL, PT, SE				
				FR 1995-8672 A	19950718
	FR 2736912	A1	19970124	FR 1995-8672	19950718
	FR 2736912	B1	19970822		
	US 5705688	A	19980106	US 1996-682188	19960717
				FR 1995-8672 A	19950718
	AT 178308	E	19990415	AT 1996-401590	19960717
				FR 1995-8672 A	19950718
	ES 2132854	T3	19990816	ES 1996-401590	19960717
				FR 1995-8672 A	19950718
	CA 2181508	AA	19970119	CA 1996-2181508	19960718
	CA 2181508	C	19990713		
				FR 1995-8672 A	19950718
	CN 1143069	A	19970219	CN 1996-106194	19960718
	CN 1063426	B	20010321		
				FR 1995-8672 A	19950718
	JP 09118645	A2	19970506	JP 1996-207967	19960718
	JP 3053575	B2	20000619		
				FR 1995-8672 A	19950718
	CZ 288198	B6	20010516	CZ 1996-2141	19960718
				FR 1995-8672 A	19950718

AB The gaseous oxidation product is subjected to **countercurrent** extraction with a heavy **hydrophobic** solvent and to 2 stages of distillation The extract from the initial stage is fed to near the bottom of the first distillation stage, from which acrylic acid is withdrawn as overhead and the bottoms are fed to a side point in the lower half of the second distillation stage. The bottoms from the second distillation (mostly solvent) are recycled to the extraction stage, a side stream containing maleic anhydride and other byproducts with b.p. between that of acrylic acid and that of the solvent is withdrawn from a point above the feed, and the overhead is recycled to the first distillation stage. Optionally, another distillation stage may be inserted between the extraction and the first distillation stage, in which light impurities (e.g., HOAc) are stripped.

=> logoff hold

COST IN U.S. DOLLARS	SINCE FILE ENTRY	TOTAL SESSION
FULL ESTIMATED COST	10.55	19.01

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DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)        SINCE FILE      TOTAL
                                                     ENTRY    SESSION
CA SUBSCRIBER PRICE                                  -1.47      -1.47

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STN INTERNATIONAL SESSION SUSPENDED AT 12:12:11 ON 27 JUL 2004

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PASSWORD:
 * * * * * * RECONNECTED TO STN INTERNATIONAL * * * * * *
SESSION RESUMED IN FILE 'CAPLUS' AT 12:12:38 ON 27 JUL 2004
FILE 'CAPLUS' ENTERED AT 12:12:38 ON 27 JUL 2004
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COST IN U.S. DOLLARS                              SINCE FILE      TOTAL
                                                     ENTRY    SESSION
FULL ESTIMATED COST                                  10.55      19.01

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)        SINCE FILE      TOTAL
                                                     ENTRY    SESSION
CA SUBSCRIBER PRICE                                  -1.47      -1.47

=> d his

     (FILE 'HOME' ENTERED AT 12:05:36 ON 27 JUL 2004)

     FILE 'REGISTRY' ENTERED AT 12:05:42 ON 27 JUL 2004

     FILE 'CAPLUS' ENTERED AT 12:09:38 ON 27 JUL 2004

     FILE 'REGISTRY' ENTERED AT 12:09:53 ON 27 JUL 2004
               E ACRYLIC ACID/CN
L1             1 E3

     FILE 'CAPLUS' ENTERED AT 12:10:18 ON 27 JUL 2004
L2         33119 L1
L3         23679 COUNTERCURRENT
L4            26 L2 AND L3
L5        138292 HYDROPHOB?
L6             2 L4 AND L5

=> d l4 16-26 ti

L4   ANSWER 16 OF 26  CAPLUS  COPYRIGHT 2004 ACS on STN
TI   Purification of acrylic or methacrylic acid

L4   ANSWER 17 OF 26  CAPLUS  COPYRIGHT 2004 ACS on STN
TI   Isolation of n-butyl acrylate

L4   ANSWER 18 OF 26  CAPLUS  COPYRIGHT 2004 ACS on STN
TI   Steady state countercurrent equilibrium stage separation with
     chemical reaction by relaxation method

L4   ANSWER 19 OF 26  CAPLUS  COPYRIGHT 2004 ACS on STN
TI   Separation of acrylic acid from gaseous mixtures

L4   ANSWER 20 OF 26  CAPLUS  COPYRIGHT 2004 ACS on STN
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TI Absorptive separation of unsaturated carboxylates

L4 ANSWER 21 OF 26 CAPLUS COPYRIGHT 2004 ACS on STN
TI Separation of acrylic acid from crude acrylic acid solutions by extraction

L4 ANSWER 22 OF 26 CAPLUS COPYRIGHT 2004 ACS on STN
TI Extraction of acrylic acid

L4 ANSWER 23 OF 26 CAPLUS COPYRIGHT 2004 ACS on STN
TI Separation of fatty acids from aqueous solutions

L4 ANSWER 24 OF 26 CAPLUS COPYRIGHT 2004 ACS on STN
TI Separation of acrylic and acetic acids

L4 ANSWER 25 OF 26 CAPLUS COPYRIGHT 2004 ACS on STN
TI Acrylic acid

L4 ANSWER 26 OF 26 CAPLUS COPYRIGHT 2004 ACS on STN
TI Acrylic acid esters

=> d l4 16-26 ti fbib abs

L4 ANSWER 16 OF 26 CAPLUS COPYRIGHT 2004 ACS on STN
TI Purification of acrylic or methacrylic acid
AN 1979:104606 CAPLUS
DN 90:104606
TI Purification of acrylic or methacrylic acid
IN Devyatykh, G. G.; Danov, S. M.; Konov, A. S.; Gorokhova, L. I.; Alekseeva, L. I.
PA Institute of Chemistry, Academy of Sciences, U.S.S.R., USSR
SO U.S.S.R.
From: Otkrytiya, Izobret., Prom. Obraztsy, Tovarnye Znaki 1978, 55(48), 84.
CODEN: URXXAF
DT Patent
LA Russian
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
SU 639858	T	19781230	SU 1972-1842725	19721109
			SU 1972-1842725	19721109

AB The degree of purification of acrylic acid (I) [**79-10-7**] or methacrylic acid [79-41-4] was increased by crystallization from a melt using a **countercurrent** of a liquid phase and crystals at -5° to +8°.

L4 ANSWER 17 OF 26 CAPLUS COPYRIGHT 2004 ACS on STN
TI Isolation of n-butyl acrylate
AN 1979:55499 CAPLUS
DN 90:55499
TI Isolation of n-butyl acrylate
IN Luczyn, Stanislaw; Wasilewski, Jerzy; Burczyk, Lidia; Kesicka, Grazyna; Lipinska-Luczyn, Elzbieta; Stelmach, Michal; Wiercioch, Jozef
PA Instytut Ciezkiej Syntezy Organicznej "Blachownia", Pol.
SO Pol., 3 pp.
CODEN: POXXA7
DT Patent
LA Polish
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PL 96750	P	19780131	PL 1974-176792	19741220
			PL 1974-176792	19741220

AB Bu acrylate (I) [141-32-2] containing virtually no acrylic acid (II) [79-10-7] is obtained by distilling the post-esterification mixture in an evaporator at 50-100 mm , returning the residue to the esterification unit, and extracting the distilate with aqueous NH3 at distillate-aqueous NH3 volume ratio 4-10:1. The raffinate from the extraction is distilled to give I, and the aqueous phase is distilled in an evaporator. The collector water is treated with NH3 and retained for extraction and the residue, containing large amts. of ammonium acrylate, isn returned to the esterification apparatus Thus, the post-esterification mixture containing H2SO4 and BuHSO4 0.5-1.5, Bu β-butoxypropionate (III) 1.3-8, II 1.5, BuOH 13%, and I was distilled in a film evaporator at 100 mm. The residue was returned to the esterification unit and the distillate (50 g) was neutralized with 50 g 3% aqueous NH3. The separated organic and aqueous phases contained 0.04 and 1.88% II, resp.
In a similar experiment **countercurrent** extraction of distillate at organic phase-aqueous phase ratio 3:1 and NH3 content in the aqueous phase 3.36% gave a raffinate which was distilled giving I containing 0.02-0.03% II.

L4 ANSWER 18 OF 26 CAPLUS COPYRIGHT 2004 ACS on STN
TI Steady state **countercurrent** equilibrium stage separation with chemical reaction by relaxation method
AN 1977:92348 CAPLUS
DN 86:92348
TI Steady state **countercurrent** equilibrium stage separation with chemical reaction by relaxation method
AU Jelinek, J.; Hlavacek, V.
CS Dep. Chem. Eng., Inst. Chem. Technol., Prague, Czech.
SO Chemical Engineering Communications (1976), 2(2), 79-85
CODEN: CEGCAK; ISSN: 0098-6445
DT Journal
LA English
AB The relaxation method is used to calculate mole fractions and temperature profiles in distillation with reaction. The method is general and nonideal vapor-liquid equilibrium can be incorporated easily. The danger of divergence is alleviated by an appropriate guess of the relaxation factor. Calculated problems on distillation with esterification of EtOH with AcOH and acrylic acid are presented.

L4 ANSWER 19 OF 26 CAPLUS COPYRIGHT 2004 ACS on STN
TI Separation of acrylic acid from gaseous mixtures
AN 1974:145437 CAPLUS
DN 80:145437
TI Separation of acrylic acid from gaseous mixtures
IN Duembgen, Gerd; Engelbach, Heinz; Frey, Walter; Krabetz, Richard; Lebert, Ulrich; Thiessen, Fritz; Willersinn, Carl H.
PA BASF A.-G.
SO Ger. Offen., 10 pp.
CODEN: GWXXBX
DT Patent
LA German
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 2241714	A1	19740328	DE 1972-2241714	19720824
	DE 2241714	B2	19740919		
	CH 581598	A	19761115	CH 1973-11060	19730730
				DE 1972-2241714	19720824
	NL 7311516	A	19740226	NL 1973-11516	19730821
				DE 1972-2241714	19720824
	FR 2196986	A1	19740322	FR 1973-30273	19730821

			DE 1972-2241714	19720824
CA 1001655	A1	19761214	CA 1973-179316	19730821
			DE 1972-2241714	19720824
US 3868417	A	19750225	US 1973-391012	19730823
			DE 1972-2241714	19720824
IT 990407	A	19750620	IT 1973-52149	19730823
			DE 1972-2241714	19720824
GB 1432190	A	19760414	GB 1973-39916	19730823
			DE 1972-2241714	19720824
BE 803985	A1	19740225	BE 1973-134898	19730824
			DE 1972-2241714	19720824
JP 49056915	A2	19740603	JP 1973-94526	19730824
JP 56021010	B4	19810516		
			DE 1972-2241714	19720824

AB Acrylic acid (I) of .apprx.99.5% purity was separated at 99% yield from gases of the propylene and acrolein oxidation and consisting mainly of inert gases containing I, HOAc, and H2O by **countercurrent** absorption with di-Et phthalate at 64-70°, driving out HOAc and H2O with N at 90°, and distilling the solution in vacuo. Plant and processing details were described.

L4 ANSWER 20 OF 26 CAPLUS COPYRIGHT 2004 ACS on STN
TI Absorptive separation of unsaturated carboxylates
AN 1974:59493 CAPLUS
DN 80:59493
TI Absorptive separation of unsaturated carboxylates
IN Kubota, Kunihiro; Nakamura, Tomoaki; Shimizu, Noboru; Ohara, Takashi
PA Japan Catalytic Chemical Industry Co., Ltd.
SO Jpn. Kokai Tokkyo Koho, 4 PP.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 48064016	A2	19730905	JP 1971-99874	19711211
JP 55034135	B4	19800904		
			JP 1971-99874	19711211

AB Unsatd. carboxylates (especially acrylates or methacrylates), obtained by gas-phase catalytic reaction of carboxylic acids with C2-4 olefins, were separated from the resulting gas mixture by **countercurrent** contact with the acids. Thus, the gas mixture containing 0.55 mole iso-Pr acrylate (I), 0.4 mole acrylic acid (II) 16.4 moles propylene, and 0.05 mole other compds. was fed to the bottom of an absorption tower (inner diameter 60 mm, height 300 mm) at 17.4 moles/hr and 100°, and II was fed to the top of the tower at 1100 g/hr and 30°, to give 1187 g/hr containing 5.18 weight % I from the bottom. When the absorption was carried out adiabatically, the concentration of I was increased.

L4 ANSWER 21 OF 26 CAPLUS COPYRIGHT 2004 ACS on STN
TI Separation of acrylic acid from crude acrylic acid solutions by extraction
AN 1971:509853 CAPLUS
DN 75:109853
TI Separation of acrylic acid from crude acrylic acid solutions by extraction
IN Sennewald, Kurt; Erpenbach, Heinz; Handte, Heinz; Lork, Winfried
PA Knapsack A.-G.
SO Ger. Offen., 16 pp.
CODEN: GWXXBX
DT Patent
LA German
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI DE 2005163	A	19710819	DE 1970-2005163	19700205

GB 1285842	A	19720816	GB 1971-1285842	19710115
			DE 1970-2005163	19700205
US 3689541	A	19720905	US 1971-106988	19710118
			DE 1970-2005163	19700205
NL 7101312	A	19710809	NL 1971-1312	19710201
			DE 1970-2005163	19700205
BE 762518	A1	19710804	BE 1971-99393	19710204
			DE 1970-2005163	19700205
FR 2078302	A5	19711105	FR 1971-4037	19710205
			DE 1970-2005163	19700205

AB Aqueous acrylic acid (I) from propene oxidation containing small amts. of AcOH, HCHO, and compds. b. >220° was extracted with 3,3,5-trimethylcyclohexanone (II)-isophorone to give pure I. Thus, 950 kg mixture of I 26.5, AcOH 1.8, HCHO 0.8, compds. b. >220° 1.9, and hydroquinone 0.1% was extracted with 788.8 kg 3.7 isophorone-I in **countercurrent** to give a head product which was distilled at 40 mm. The head product (368 kg) of this distillation, containing 68.2% I, was distilled at 100 mm. The bottom product distilled at 40 mm to give 99% I containing 0.4% polymer and 0.2% AcOH as bottom product.

L4 ANSWER 22 OF 26 CAPLUS COPYRIGHT 2004 ACS on STN
TI Extraction of acrylic acid
AN 1971:54366 CAPLUS
DN 74:54366
TI Extraction of acrylic acid
IN Kato, Tsuneyuki; Aoshima, Jun
PA Asahi Chemical Industry Co., Ltd.
SO Jpn. Tokkyo Koho, 2 pp.
CODEN: JAXXAD
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 45026485	B4	19700901	JP	19650422

AB In acrylic acid (I) manufacture by catalytic oxidation of propylene, Et propionate (II) is used as an extraction solvent for I from the aqueous reaction mixture Thus, an aqueous solution containing I 20.0% and AcOH 3% was extracted at 30° with II at 500 g/hr by using a **countercurrent** extractor (mixer-settler type) to give 631.9 g/hr extract containing 99.8 g/hr I and 14.6 g/hr AcOH, and 3.4 % H2O. H2O in the extract could be removed by distillation at 120 mm with addition of 500 ppm hydroquinone mono-Me ether, whereupon 99.4 g/hr I and 14.2 g/hr AcOH were obtained.

L4 ANSWER 23 OF 26 CAPLUS COPYRIGHT 2004 ACS on STN
TI Separation of fatty acids from aqueous solutions
AN 1970:110808 CAPLUS
DN 72:110808
TI Separation of fatty acids from aqueous solutions
IN Hiramoto, Takashi; Sahara, Seishiro; Kawakami, Seizo
PA Daicell Co., Ltd.
SO Ger. Offen., 8 pp.
CODEN: GWXXBX
DT Patent
LA German
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 1942338	A	19700326	DE 1969-1942338	19690820
			JP 1968-67169	19680917

AB HOAc and CH2:CH-CO2H, were separated from aqueous solns. with isophorone as extracting agent. Thus, CH2:CHCO2H 21, H2O 600, and isophorone 300 parts/unit of time were passed in an extraction volume containing 4 theoretical plates in a **countercurrent** to recover 99% CH2:CH-CO2H. The extract containing 5.05% CH2:CHCO2H in isophorone was fractionated with 0.1% hydroquinone in a column with 30 per-forated plates at 50 mm to give CH2:CHCO2H of 99% purity. The isophorone on the bottom of the column was reused.

L4 ANSWER 24 OF 26 CAPLUS COPYRIGHT 2004 ACS on STN
TI Separation of acrylic and acetic acids
AN 1965:462495 CAPLUS
DN 63:62495
OREF 63:11367h,11368a
TI Separation of acrylic and acetic acids
PA Union Carbide Corp.
SO 9 pp.
DT Patent
LA Unavailable
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI NL 6409946		19650301	NL	
			US	19630830

AB In the com. production of acrylic acid, an aqueous mixture of acrylic and acetic acids results. Acrylic acid is extracted from this solution by water-insol. ethers, alcs., ketones, esters, and chlorinated solvents. A number of examples are given of extns. in continuous **countercurrent** columns leading to the separation of acrylic acid of 98.5% purity or better. The preferred extraction solvents are diisopropyl ether, isopropyl acetate, benzene, toluene, chloroform, or dichloroethane. The extraction is best performed at 10-50°.

L4 ANSWER 25 OF 26 CAPLUS COPYRIGHT 2004 ACS on STN
TI Acrylic acid
AN 1965:43532 CAPLUS
DN 62:43532
OREF 62:7642e-f
TI Acrylic acid
PA Societe d'electrochimie, d'electrometallurgie et des acieries electriques d'Ugine; d'Electro-Metallurgie et des Acieries Electriques d'Ugine
SO 7 pp.
DT Patent
LA Unavailable
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI NL 6401921		19640922	NL	
			FR	19630321

AB H2O was removed from aqueous solns. of acrylic acid (I) by vacuum distillation of an heterogeneous azeotropic mixture Thus, a mixture of 500 g. 50% aqueous I and 100 g. toluene was distilled at 100 mm. in the presence of 0.5 g. hydroquinone and 1 g. Cu turnings to prevent polymerization. The recovered toluene was continuously returned to the distillation flask by **countercurrent.** Three fractions were collected: azeotrope, b100 35°; toluene, b100 53°; I, b100 87°, yielding 249 g. H2O containing 0.1% I, 109 g. toluene containing 9% I,and 236 g. I of a 99.7% purity. Similarly used were C6-H6 and acrylonitrile.

L4 ANSWER 26 OF 26 CAPLUS COPYRIGHT 2004 ACS on STN
TI Acrylic acid esters
AN 1960:80367 CAPLUS

DN 54:80367
OREF 54:15248b
TI Acrylic acid esters
IN Carlyle, Robert L.
PA Dow Chemical Co.
DT Patent
LA Unavailable
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2917538		19591215	US	

AB Alkyl (C6-C12) acrylates and methacrylates are prepared in high yields in a continuous process by bringing a mixture of acids, alcohols (≥C6), hydroquinone, and alkanesulfonic acid at 120° in contact with a **countercurrent** flow of vaporized toluene.

=> d l4 1-15 ti fbib abs

L4 ANSWER 1 OF 26 CAPLUS COPYRIGHT 2004 ACS on STN
TI Preparation of acrylic acid by the partial gas-phase catalytic oxidation of propylene and/or acrolein
AN 2004:310880 CAPLUS
DN 140:321910
TI Preparation of acrylic acid by the partial gas-phase catalytic oxidation of propylene and/or acrolein
IN Thiel, Joachim; Hammon, Ulrich; Baumann, Dieter; Heilek, Jorg; Schroder, Juergen; Muller-Engel, Klaus Joachim
PA BASF Aktiengesellschaft, Germany
SO U.S. Pat. Appl. Publ., 15 pp.
CODEN: USXXCO
DT Patent
LA English
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI US 2004073063	A1	20040415	US 2003-465613	20030620
			DE 2002-10247240A	20021010
DE 10247240	A1	20040422	DE 2002-10247240	20021010
WO 2004035514	A1	20040429	WO 2003-EP11015	20031006

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU

RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

DE 2002-10247240A 20021010

AB In a process for preparing acrylic acid, an acrylic acid-containing product gas mixture obtained by catalytic gas-phase partial oxidation of a C3 precursor of acrylic acid (e.g., propylene and/or acrolein), with an O2-containing gas, which, after direct cooling with a quench liquid, is fractionally condensed in a separating column provided with internals, rising into itself with a side-stream takeoff of crude acrylic acid, and the acrylic acid oligomers which form are dissociated and the resulting dissociation gas is subjected to a **countercurrent** rectification before it is recycled.

L4 ANSWER 2 OF 26 CAPLUS COPYRIGHT 2004 ACS on STN
TI GC/MS characterization of liquids generated from low-temperature pyrolysis of wood
AN 2003:444217 CAPLUS

DN 139:135075
TI GC/MS characterization of liquids generated from low-temperature pyrolysis of wood
AU Branca, Carmen; Giudicianni, Paola; Di Blasi, Colomba
CS Dipartimento di Ingegneria Chimica, Universita degli Studi di Napoli "Federico II"P.le V. Tecchio, Naples, 80125, Italy
SO Industrial & Engineering Chemistry Research (2003), 42(14), 3190-3202
CODEN: IECRED; ISSN: 0888-5885
PB American Chemical Society
DT Journal
LA English
AB Conventional pyrolysis of beech wood was carried out for heating temps. in the range 600-900 K, reproducing conditions of interest in **countercurrent** fixed-bed gasification. The yields of liqs. (water and tars) increased with the heating temperature from about 40 to 55% of dry wood mass, confirming results previously obtained with a laboratory-scale gasifier. Apart from qual. identification of .apprx.90 species, GC/MS techniques were applied to quantify 40-43% of tars (40 species, with major contributions from acetic acid, hydroxypropanone, hydroxyacetaldehyde, levoglucosan, HCOOH, syringol, and 2-furaldehyde). Decomposition of holocellulose led to the formation of furan derivs. and carbohydrates, with a temperature-dominated selectivity toward hydroxyacetaldehyde against levoglucosan. Syringols and guaiacols, originating from primary degradation of lignin, presented a maximum for heating temps. of about 750-800 K, whereas, because of secondary degradation, phenols continuously increased. A comparison is also provided with fast pyrolysis liqs. obtained from 4 com. plants.
RE.CNT 63 THERE ARE 63 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 3 OF 26 CAPLUS COPYRIGHT 2004 ACS on STN
TI Procedure for cleaning of tray columns, used for rectification of liquids containing (meth)acrylic acid or its ester
AN 2003:170384 CAPLUS
DN 138:205466
TI Procedure for cleaning of tray columns, used for rectification of liquids containing (meth)acrylic acid or its ester
IN Schroeder, Juergen; Mueller-Engel, Klaus Joachim; Schliephake, Volker; Hammon, Ulrich; Diehl, Volker; Jaeger, Ulrich
PA BASF AG, Germany
SO Ger. Offen., 4 pp.
CODEN: GWXXBX
DT Patent
LA German
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 10211273	A1	20030306	DE 2002-10211273	20020313
	WO 2003076385	A1	20030918	WO 2003-EP2186	20030304

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

DE 2002-10211273A 20020313

AB A rapid, efficient procedure for cleaning tray columns, used for rectification of liqs. containing (meth)acrylic acid/ester, whereby a basic solution, such as NaOH is passed from to top to the bottom, a gas, preferably air, is passed in **countercurrent** flow generating a gas phase

pressure difference ≥0.5 mbars/tray, especially 1-5 mbars/tray, during the cleaning procedure. The improved cleaning effect is caused by formation of maelstroms in the rinsing liquid

L4 ANSWER 4 OF 26 CAPLUS COPYRIGHT 2004 ACS on STN
TI Method for purifying acrylic acid obtained by oxidation of propylene and/or acrolein
AN 2001:208225 CAPLUS
DN 134:237959
TI Method for purifying acrylic acid obtained by oxidation of propylene and/or acrolein
IN Fauconet, Michel; Laurent, Denis; Stojanovic, Mireille
PA ATOFINA, Fr.
SO PCT Int. Appl., 35 pp.
CODEN: PIXXD2
DT Patent
LA French
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 2001019769	A1	20010322	WO 2000-FR2505	20000912
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
			FR 1999-11483	A 19990914
FR 2798382	A1	20010316	FR 1999-11483	19990914
FR 2798382	B1	20011026		
AU 2000074271	A5	20010417	AU 2000-74271	20000912
			FR 1999-11483	A 19990914
			WO 2000-FR2505	W 20000912
EP 1212280	A1	20020612	EP 2000-962604	20000912
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL				
			FR 1999-11483	A 19990914
			WO 2000-FR2505	W 20000912
JP 2003509394	T2	20030311	JP 2001-523350	20000912
			FR 1999-11483	A 19990914
			WO 2000-FR2505	W 20000912

OS MARPAT 134:237959
AB The invention concerns a method whereby the gaseous reaction mixture (1) formed from propylene as the case may be, of final oxidation products, of acrylic acid, acrolein, water vapor, acetic acid and heavy products, is set at the base of an absorption column (C1), fed in **countercurrent** at the head with a hydrophobic heavy absorption solvent such as ditolyl ether. At the head of (C1) a gas stream (7) is obtained, consisting of propylene and final oxidation products, major amts. of water and acetic acid, and acrolein, and at the base of (C1), a flux (4) consisting of acrylic acid, heavy solvent, heavy products and minor amts. of acetic acid and water. The gas stream (7) is set on a heat exchanger (C3), where it is contacted with a descending liquid current (8) supplied at the head of (C3) and consisting of the recycled product of part of the flow (9) at the foot of (C3) previously cooled, to obtain, at the head, a gas stream (10) containing the compds. present in the gas stream (7) except for the major part of water and the entire amount of acetic acid, eliminated in the flow (9) at the base of (C3). This purification is optionally conducted in the presence of a polymerization inhibitor.
RE.CNT 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 5 OF 26 CAPLUS COPYRIGHT 2004 ACS on STN
TI Extraction process for the recovery of acrylic acid from process or waste water streams
AN 1999:495262 CAPLUS
DN 131:116651
TI Extraction process for the recovery of acrylic acid from process or waste water streams
IN Lee, Fu-Ming; Gualy, Ronald G.
PA HFM International, Inc., USA
SO PCT Int. Appl., 16 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 9938834	A1	19990805	WO 1999-US2222	19990202
W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
			US 1998-73501P P	19980203
			US 1999-229873 A	19990114
US 6180827	B1	20010130	US 1999-229873	19990114
			US 1998-73501P P	19980203
TW 460309	B	20011021	TW 1999-88101495	19990201
			US 1998-73501P P	19980203
			US 1999-229873 A	19990114
ZA 9900808	A	19990802	ZA 1999-808	19990202
			US 1998-73501P P	19980203
AU 9924919	A1	19990816	AU 1999-24919	19990202
			US 1998-73501P P	19980203
			US 1999-229873 A	19990114
			WO 1999-US2222 W	19990202
EP 1068173	A1	20010117	EP 1999-904541	19990202
R: AT, DE, ES, FR, GB, IT, NL				
			US 1998-73501P P	19980203
			US 1999-229873 A	19990114
			WO 1999-US2222 W	19990202

AB Acrylic acid is recovered from process or waste water streams in a process in which the stream is vaporized and contacted with a liquid, high-boiling solvent (e.g., Cyanex 923) for acrylic acid thus absorbing the acrylic acid into the solvent. The acrylic acid is then stripped from the solvent with heat, and, optionally, stripping gas, and is separated from any accompanying materials to produce acrylic acid of high purity. Process flow diagrams are presented.
RE.CNT 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 6 OF 26 CAPLUS COPYRIGHT 2004 ACS on STN
TI Method for cooling hot gases without mist formation
AN 1999:384081 CAPLUS
DN 131:20900
TI Method for cooling hot gases without mist formation
IN Ulbrich, Michael-Dieter; Sachweh, Bernd; Schraut, Armin; Hammon, Ulrich; Schliephake, Volker; Martin, Friedrich-Georg
PA BASF A.-G., Germany
SO Ger. Offen., 6 pp.
CODEN: GWXXBX
DT Patent
LA German

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 19754155	A1	19990610	DE 1997-19754155	19971205
	WO 9929414	A1	19990617	WO 1998-EP7669	19981127
	W: BR, CN, JP, US				
	RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
				DE 1997-19754155A	19971205

AB Hot reaction gases (70-400°C) are cooled by co-current (or **countercurrent**) contacting with flowing liquid films (20-140°C, 1-2 bar) in a packed column. The gases can be reaction gases, e.g., from gas phase reaction for (meth)acrylic acid production, or flue gases. The cooling liquid can be water, aqueous solns. or Diphyl, a mixture of biphenyl and diphenylether. The method prevents the formation of aerosols or mist clouds. The cooled gases can be passed through a condenser.

L4 ANSWER 7 OF 26 CAPLUS COPYRIGHT 2004 ACS on STN
TI Extraction of (meth)acrylic acid from aqueous solution
AN 1998:603292 CAPLUS
DN 129:231141
TI Extraction of (meth)acrylic acid from aqueous solution
IN Martin, Friedrich-Georg; Schraut, Armin; Ulbrich, Michael-Dieter
PA BASF A.-G., Germany
SO Ger. Offen., 6 pp.
CODEN: GWXXBX
DT Patent
LA German

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 19709392	A1	19980910	DE 1997-19709392	19970307
	WO 9840342	A1	19980917	WO 1998-EP1256	19980305
	W: AL, AU, BG, BR, BY, CA, CN, CZ, GE, HU, ID, IL, JP, KR, KZ, LT, LV, MX, NO, NZ, PL, RO, RU, SG, SI, SK, TR, UA, US, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
				DE 1997-19709392A	19970307
	AU 9868276	A1	19980929	AU 1998-68276	19980305
				DE 1997-19709392A	19970307
				WO 1998-EP1256 W	19980305
	EP 973718	A1	20000126	EP 1998-913652	19980305
	R: BE, DE, ES, FR, GB, IT, NL				
				DE 1997-19709392A	19970307
				WO 1998-EP1256 W	19980305
	BR 9808158	A	20000328	BR 1998-8158	19980305
				DE 1997-19709392A	19970307
				WO 1998-EP1256 W	19980305
	JP 2001514643	T2	20010911	JP 1998-539182	19980305
				DE 1997-19709392A	19970307
				WO 1998-EP1256 W	19980305
	TW 438760	B	20010607	TW 1998-87103308	19980306
				DE 1997-19709392A	19970307

AB Acrylic or methacrylic acid is recovered from aqueous solution by contacting this solution with one containing 50-100% ≥1 extractant which itself is capable of being chemical converted into (meth)acrylic acid and which forms a miscibility gap with the aqueous solution; an organic phase containing the (meth)acrylic acid and extractant plus an aqueous phase are thereby obtained. Examples of extractants are (meth)acrolein, isobutylene, propylene, propane, butane, isobutyraldehyde, MTBE, or their mixts. The extractant may then be recovered and recycled for further (meth)acrylic acid production Examples

were given for recovery of methacrylic acid from aqueous solns. containing acetic acid, using methacrolein in the extractant.

L4 ANSWER 8 OF 26 CAPLUS COPYRIGHT 2004 ACS on STN
TI Purification of acrylic acid obtained by the catalytic oxidation of propylene
AN 1997:178840 CAPLUS
DN 126:172034
TI Purification of acrylic acid obtained by the catalytic oxidation of propylene
IN Fauconet, Michel; Esch, Marc; Samuel, Yves; Laurent, Denis
PA Elf Atochem S.A., Fr.
SO Eur. Pat. Appl., 12 pp.
CODEN: EPXXDW
DT Patent
LA French
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 754671	A1	19970122	EP 1996-401590	19960717
	EP 754671	B1	19990331		
	R: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LI, LU, NL, PT, SE				
				FR 1995-8672 A	19950718
	FR 2736912	A1	19970124	FR 1995-8672	19950718
	FR 2736912	B1	19970822		
	US 5705688	A	19980106	US 1996-682188	19960717
				FR 1995-8672 A	19950718
	AT 178308	E	19990415	AT 1996-401590	19960717
				FR 1995-8672 A	19950718
	ES 2132854	T3	19990816	ES 1996-401590	19960717
				FR 1995-8672 A	19950718
	CA 2181508	AA	19970119	CA 1996-2181508	19960718
	CA 2181508	C	19990713		
				FR 1995-8672 A	19950718
	CN 1143069	A	19970219	CN 1996-106194	19960718
	CN 1063426	B	20010321		
				FR 1995-8672 A	19950718
	JP 09118645	A2	19970506	JP 1996-207967	19960718
	JP 3053575	B2	20000619		
				FR 1995-8672 A	19950718
	CZ 288198	B6	20010516	CZ 1996-2141	19960718
				FR 1995-8672 A	19950718

AB The gaseous oxidation product is subjected to **countercurrent** extraction with a heavy hydrophobic solvent and to 2 stages of distillation The extract from the initial stage is fed to near the bottom of the first distillation stage, from which acrylic acid is withdrawn as overhead and the bottoms are fed to a side point in the lower half of the second distillation stage. The bottoms from the second distillation (mostly solvent) are recycled to the extraction stage, a side stream containing maleic anhydride and other byproducts with b.p. between that of acrylic acid and that of the solvent is withdrawn from a point above the feed, and the overhead is recycled to the first distillation stage. Optionally, another distillation stage may be inserted between the extraction and the first distillation stage, in which light impurities (e.g., HOAc) are stripped.

L4 ANSWER 9 OF 26 CAPLUS COPYRIGHT 2004 ACS on STN
TI Separation of acrylic acid from reaction gas from catalytic oxidation of propene and/or acrolein
AN 1995:374673 CAPLUS
DN 122:134125
TI Separation of acrylic acid from reaction gas from catalytic oxidation of

propene and/or acrolein
IN Willersinn, Carl-Heinz
PA BASF A.-G., Germany
SO Ger. Offen., 4 pp.
CODEN: GWXXBX
DT Patent
LA German
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI DE 4308087	A1	19940915	DE 1993-4308087	19930313
DE 4308087	C2	19970206		
US 5426221	A	19950620	US 1994-202562	19940228
			DE 1993-4308087	19930313
BE 1007189	A3	19950418	BE 1994-275	19940311
			DE 1993-4308087	19930313

AB The title separation involves **countercurrent** absorption with a mixture of 70-75% Ph2O and 25-30% biphenyl containing 0.1-25% di-Me phthalate.

L4 ANSWER 10 OF 26 CAPLUS COPYRIGHT 2004 ACS on STN
TI Purification of crude acrylic or methacrylic esters by extraction with water in distillation column with vibrating plates
AN 1995:259740 CAPLUS
DN 122:32347
TI Purification of crude acrylic or methacrylic esters by extraction with water in distillation column with vibrating plates
IN Heyberger, Ales; Prochazka, Jaroslav; Martinec, Alexandr; Havlicek, Werner
PA Chemicke Zavody Sokolov, Czech Rep.
SO Czech Rep., 4 pp.
CODEN: CZXXED
DT Patent
LA Czech
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI CZ 277880	B6	19930317	CZ 1990-189	19900115
			CZ 1990-189	19900115

AB The acid catalyst (tosylic acid) residues are removed from the title esters by continuous **countercurrent** extraction with H2O in an apparatus that generates constant vibration, e.g., in a distillation column with vibrating perforated plates. The aqueous phase is dispersed in droplet form in the continuous organic phase at an amplitude of 0.2-4.0 cm and frequency of 1-8 Hz, and the consumption of H2O is significantly reduced by keeping the H2O/organic phase ratio at 1:(10-20).

L4 ANSWER 11 OF 26 CAPLUS COPYRIGHT 2004 ACS on STN
TI Process and column for continuous removal of monomers from aqueous polymer suspensions
AN 1990:592249 CAPLUS
DN 113:192249
TI Process and column for continuous removal of monomers from aqueous polymer suspensions
IN Kuxdorf, Bernhard; Erpenbach, Heinz; Komischke, Peter; Lork, Winfried; Wydera, Andreas
PA Hoechst A.-G., Germany
SO Ger., 5 pp.
CODEN: GWXXAW
DT Patent
LA German
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI DE 3919354	C1	19900621	DE 1989-3919354	19890614
			DE 1989-3919354	19890614

AB In the title process, which prevents the deposition of solids in the column and consequent pressure drops, polymer emulsions (1-60% solids, average particle size 20-500 μm, monomer content ≤5000 mg/kg) are passed at 50-100° down a multiplate column **countercurrent** to a flow of steam (2-50 kg/h) at 50-150°/0.1-2 bar with residence time 1-60 min. Passing 20 m3/m2-h 22% aqueous PVC suspension containing 23 ppm vinyl chloride (I) down a 7-plate column (diameter 100 mm) with head temperature 100° and bottoms temperature 103° **countercurrent** to a stream of 7 kg/h steam with a pressure drop of 12 mbar/plate gave 4.3 kg/h overhead containing 70% I and a PVC suspension containing <0.1 ppm I, with no increase in pressure drop over an extended operation.

L4 ANSWER 12 OF 26 CAPLUS COPYRIGHT 2004 ACS on STN
TI Solvent regeneration of spent activated carbon in wastewater treatment
AN 1990:537945 CAPLUS
DN 113:137945
TI Solvent regeneration of spent activated carbon in wastewater treatment
AU Tamon, Hajime; Saito, Takashi; Kishimura, Masaaki; Okazaki, Morio; Toei, Ryozo
CS Dep. Chem. Eng., Kyoto Univ., Kyoto, 606, Japan
SO Journal of Chemical Engineering of Japan (1990), 23(4), 426-32
CODEN: JCEJAQ; ISSN: 0021-9592
DT Journal
LA English
AB EtOH regeneration was applied to spent activated C which had adsorbed an organic compound in aqueous solns., including an industrial wastewater. High regeneration efficiency was achieved except for aromatic compds. substituted by electron-donating groups. In the case where EtOH regeneration was not effective, efficient regeneration was possible using an electron-donating solvent such as N,N-dimethylformamide. For practical uses, the solvent regeneration of C which had adsorbed PhOH was studied using fixed-bed runs. EtOH and MePh showed high regeneration efficiency. The column desorption of PhOH was simulated and gave good agreement with observed results. The regeneration efficiency of EtOH and MePh fell to 80% after 5 regeneration cycles. The influence of PhOH concentration in solvent on the regeneration efficiency was exptl. determined, and the results suggested that the amount of solvent can be minimized by using **countercurrent** multistage operation.

L4 ANSWER 13 OF 26 CAPLUS COPYRIGHT 2004 ACS on STN
TI Purification by melting and crystallizing
AN 1989:25897 CAPLUS
DN 110:25897
TI Purification by melting and crystallizing
AU Nakamaru, Kazuto; Takegami, Keizo
CS Tsukishima Kikai Co., Ltd., Tokyo, 104, Japan
SO Kagaku Sochi (1988), 30(10), 48-52
CODEN: KASOB7; ISSN: 0368-4849
DT Journal
LA Japanese
AB The principle and applications are discussed of a sweating process for organic-crystal purification When an organic crystal with an impurity and its mother liquor are kept at a temperature slightly below its m.p., an impure fraction melts into the mother liquor and the purified crystal solidifies again. A **countercurrent**, multistage, crystallizer-purifier unit is described, through which crystals are purified by sweating and separated from their mother liquor (4C Process); a crystal with >99.99% purity is separated from its original solution through one pass of the unit, when the solution is of a eutectic system and contains an impurity as much as 10%, or even more. Purified p-xylene, as much as 130 + 103 ton/yr, is manufactured through the 4C Process by use of 2 crystallizer-purifier units. The 4C Process is applicable to the purification of p-xylene, p-dichlorobenzene, caprolactam,

AcOH, xylenol, naphthalene, p-nitrochlorobenzene, picoline, acrylic acid, hexamethylenediamine, and dipropylbenzene either com. or on a pilot scale.

L4 ANSWER 14 OF 26 CAPLUS COPYRIGHT 2004 ACS on STN
TI Acrylic acid purification
AN 1984:175848 CAPLUS
DN 100:175848
TI Acrylic acid purification
PA Nippon Shokubai Kagaku Kogyo Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 4 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 59010546	A2	19840120	JP 1982-117812	19820708
	JP 62045219	B4	19870925		
				JP 1982-117812	19820708

AB Aqueous solns. of crude acrylic acid (I) [**79-10-7**], prepared by gas-phase oxidation of propylene (II) [115-07-1] or acrolein [107-02-8], are extracted in the presence bisulfite salts to prevent accumulation of solid polymers on the extraction column or reboiler. Thus, 20 kg/h aqueous solution containing 24% I, 0.8% AcOH, 0.8% maleic acid, etc., prepared by II oxidation was countercurrently extracted with iso-Pr acetate [108-21-4] in the presence of 0.25 kg/h 30% aqueous NaHSO3. No problem was observed over 20 days.

L4 ANSWER 15 OF 26 CAPLUS COPYRIGHT 2004 ACS on STN
TI Equipment for continuous separation of acrylic acid from aqueous solutions
AN 1981:208376 CAPLUS
DN 94:208376
TI Equipment for continuous separation of acrylic acid from aqueous solutions
IN Hum, Miroslav; Prochazka, Jaroslav; Svoboda, Karel; Heyberger, Ales
PA Chemopetrol, Koncernova Organizace pro Chemicky Prumysl a Zpracovani Ropy, Czech.
SO Rom., 6 pp.
CODEN: RUXXA3
DT Patent
LA Romanian
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	RO 66487	B	19790710	RO 1974-79081	19740607
				RO 1974-79081	19740607

AB Acrylic acid was removed from aqueous solns. by counter-current extraction with water-immiscible organic solvents in an apparatus, which is described. 2-Ethylhexanol and its mixts. with C6H6 were used as extraction solvents.

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